

# Daily GLOWBUGS

## Digest: V1 #109

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](#)

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%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%%

**Subject: glowbugs V1 #109**

**glowbugs**

**Thursday, September 11 1997**

**Volume 01 : Number 109**

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Date: Wed, 10 Sep 1997 15:37:38 -0400

From: "Brian Carling" <bry@mnsinc.com>

Subject: Web Site...

Homebrew-Glowbug Heaven is at:

<http://www.mnsinc.com/bry/hamfiles.htm>

Enough projects to keep you busy for two winters!

Bry, AF4K

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Date: Wed, 10 Sep 1997 15:37:39 -0400

From: "Brian Carling" <bry@mnsinc.com>

Subject: Re: RS transformers

And all of us empiricists thought... "AMEN!"

On 8 Sep 97 at 10:52, William Hawkins wrote:

> Well, the transformer will not survive having the 25 volt winding  
> connected to the line, but not because of impedance. Transformer  
> turns ratio determines voltage and impedance ratios, but it is  
> core saturation that sets the limits. Yes, the same thing that  
> won't let you use a 400 cycle transformer at its rated voltage on  
> 60 cycle current. A magnetic core has a maximum flux change that  
> it can do before allof the magnetic domains ae lined up and no  
> further change is possible. When the flux stops changing, you have  
> a coil of wire with only its DC resistance for an 'impedance' and  
> not an inductor. It is the DC resistance of the copper that will  
> either b low the fuse or burn up the winding.  
>

> The amount of flux change possible is proportional to the volume

> (and weight) of the iron core. Applied voltage causes the flux  
> to change, and inductance makes that take time to change. So  
> there is a voltage times time product that is a property of the  
> way the transformer is built - the amount of iron and the amount  
> of copper (number of turns). Since iron and copper cost money,  
> transformer designers use as little as possible. That means  
> that there isn't enough margin in the design to increase the  
> voltage applied to a winding by a factor of 5 (25 to 125) and  
> not run into saturation. Maybe 1.2 is more like it.  
>  
> Now, you can increase the voltage if you decrease the time. That  
> would mean using about 400 cycle current to run a 25V 60 Hz  
> winding at 125 V. But that would be more expensive than buying  
> the right transformer (unless you have a 400 cycle generator  
> purring away in the corner of your shop).  
>  
> Regards,  
> Bill Hawkins  
>  
>

\*\*\*\*\*  
\*\*\* 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA \*  
\*\* E-mail to: bry@mnsinc.com \*  
\*\*\* See the interesting ham radio resources at: \*  
\*\* <http://www.mnsinc.com/bry/> \*  
\*\*\*\*\*  
AM International #1024, TENTEN #13582. GRID FM19  
Rigs: Valiant, DX-60/HG-10, Eldico TR-75, Millen 90810  
FT-840, TM-261, Ameco TX-62, Gonset Communicator III  
HTX-202...TEN-TEN #13582, DXCC #17,763 Bicentennial WAS

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Date: Wed, 10 Sep 1997 14:09:49 -0700 (MST)  
From: Jeff Duntemann <[jeffd@coriolis.com](mailto:jeffd@coriolis.com)>  
Subject: Tube crystal oscillator survey in 73

Hi gang--

Well, I got a couple things mixed up but not a lot. The September 1961 issue of 73 contains a very large, very good article on tube crystal oscillators, citing circuits with the 6AG7, 6BH6, 6C4, 5763/6417, and several other tubes, with good running commentary. It's not by Jim Fisk--I was getting confused with his monumental SS oscillator survey in Ham Radio in 1976, which is also in my files. The 73 article is bylined as "Staff"--meaning somebody did it in-house, I would guess. Hard to say who--Jim Fisk was not associated with 73 at that time to my knowledge.

Regardless, it's a very nice article in what has always been a very spotty magazine.

- --73--

- --Jeff Duntemann KG7JF  
Scottsdale, Arizona

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Date: Wed, 10 Sep 1997 17:27:00 -0400  
From: "Brian Carling" <bry@mnsinc.com>  
Subject: Re: Condx...

Ken - the two most common QRGs are still 3579 and 7050

Bry

On 31 Aug 97 at 21:06, Ken Gordon wrote:

> Band condx seem to have picked up a bit. Have been working stations  
> further east in the last day or two. Of course, getting my antenna fixed  
> probably helped a bit too.  
>  
> Anyone happening to be listening on 7003, 7015, 7020, or 7050 might keep  
> an ear out for my GRC-109 there.  
>  
> Is the BA/GB gang still meeting on 7060 periodically, or on 7115 ? Have we  
> decided on a frequency?  
>  
> I also found an HC-6/U crystal under the chassis of an old TV set someone  
> gave me, at 3579.545. Soldered some pins on it and it works great.  
>  
> 80 meters anyone ?  
>  
> Kenneth G. Gordon W7EKB College of Mines and Earth Resources  
> 226 N. Washington St. //or// University of Idaho  
> Moscow, Idaho 83843 Moscow, Idaho 83844  
> (208)-882-8745 (208)-885-6133  
> Great Highland Pipes, Amateur Radio, Electronic Consulting, Home-Schooling  
> Traditional Roman Catholic  
>  
> My PGP Public Key Upon Request.  
>  
>  
>  
\*\*\*\*\*  
\*\*\* 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA \*  
\*\* E-mail to: bry@mnsinc.com \*  
\*\*\* See the interesting ham radio resources at: \*  
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AM International #1024, TENTEN #13582. GRID FM19  
Rigs: Valiant, DX-60/HG-10, Eldico TR-75, Millen 90810  
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HTX-202...TEN-TEN #13582, DXCC #17,763 Bicentennial WAS

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Date: Wed, 10 Sep 1997 23:47:37 +0000  
From: Sandy W5TVW <ebjr@worldnet.att.net>  
Subject: "BA" net activity

The "BA" net activity has been sort of erratic this summer. Several of us have "deviated" from the usual 7050 spot on 40 meters to dodge the increasing amounts of QRM. We have had some limited success on 7060. 40 meters seems to be becoming a popourri of modes this past summer. We have experienced very heavy SSB QRM (Several times invited in English

to "QSY to CW band!" by Spanish speaking stations! The digital users seem to be migrating down the band as well and can be heard almost down to 7025 with various AMTOR/PACTOR modes.

80 meter should be improving rapidly, so I would encourage users to check out the 80 meter QRG!

Most activity takes place on 40 around 0200 GMT. I have been personally monitoring 80 around 0300, 0330 and 0400 GMT but the activity has been very sparse. The band is "open" as I can heard the Portishead, England coast station almost nightly, plus the VOLMET SSB stations just below 3.5 Mhz.

Look nightly on 7060 and 3579.5 plus or minus a bit for those with VFOs or transceivers for activity.

73,

E. V. Sandy Blaize, W5TVW

"Boat Anchors collected, restored, repaired, traded and used!"

417 Ridgewood Drive,

Metairie, LA., 70001

ebjr@worldnet.att.net

\*\*Looking for: Hallicrafters SR-75 Transceiver\*\*

\*\*RK-34(VT-224) tubes, Butternut HF2V antenna\*\*\*

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Date: Thu, 11 Sep 1997 00:29:49 UTC

From: k7sz@juno.com

Subject: Re: "BA" net activity

On Wed, 10 Sep 1997 23:47:37 +0000 Sandy W5TVW <ebjr@worldnet.att.net> writes:

>40 meters seems to be becoming a popourri of modes this past summer.  
>We have experienced very heavy SSB QRM (Several times invited in  
>English to "QSY to CW band!" by Spanish speaking stations!

I have noticed a MASSIVE increase in Spanish SSB QRM. This seems to be a growing trend, and not what I would consider a "good" trend at that.

>The digital users seem to be migrating down the band as well and can be heard >almost down to 7025 with various AMTOR/PACTOR modes.

This is my "very bestes pet peeve": data dinks on our QRP calling freqs. Those of us who do a lot of QRP work are constantaly harrassed by the data dinks buzzing and ratcheting away all over our QRP calling freqs. It is almost unbearable during QRP contests in the spring and fall. Then the data dinks go overboard to make life miserable for those of us who are contesting.

This influx of data dinks was originally caused by the ARRL, who in their infinite wisdom, started listing 7040 as a digital calling freq. They heard from the QRP ARCI on the matter but never did any kind of retraction that I saw in print.

Now it seems that QRP freqs are fair game. I have the advantage of a BIG antenna on 20/15/10 meters where I can crank up about 25 watts and sound loud so I can make life difficult for the data dinks on those bands. But I am not all that competitive with antennas on 40 and 80 meters....(80 mtr Zepp fed with 450 ohm ladder line up at 48 feet at the apex). Therefore, I can do little to discourage their data QRM on those bands.

Makes me want to sell the radios and take up stamp collecting.

73 rich K7SZ

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Date: Thu, 11 Sep 1997 03:58:55 GMT  
From: wrt@eskimo.com (Bill Turner)  
Subject: Re: "BA" net activity

On Thu, 11 Sep 1997 00:29:49 UTC, k7sz@juno.com wrote:

<snip>

>>The digital users seem to be migrating down the band as well and can be  
>>heard >almost down to 7025 with various AMTOR/PACTOR modes.

>

>This is my "very bestes pet peeve": data dinks on our QRP calling freqs.

>Those of us who do a lot of QRP work are constantaly harrassed by the

>data dinks buzzing and ratcheting away all over our QRP calling freqs. =  
It

>is almost unbearable during QRP contests in the spring and fall. Then =  
the

>data dinks go overboard to make life miserable for those of us who are  
>contesting.=20

>

>This influx of data dinks was originally caused by the ARRL, who in =  
their

>infinite wisdom, started listing 7040 as a digital calling freq. They

>heard from the QRP ARCI on the matter but never did any kind of

>retraction that I saw in print.=20

>

>Now it seems that QRP freqs are fair game. I have the advantage of a BIG

>antenna on 20/15/10 meters where I can crank up about 25 watts and sound

>loud so I can make life difficult for the data dinks on those bands. But

>I am not all that competitive with antennas on 40 and 80 meters....(80

>mtr Zepp fed with 450 ohm ladder line up at 48 feet at the apex).

>Therefore, I can do little to discourage their data QRM on those bands.=20

>

>Makes me want to sell the radios and take up stamp collecting.

>

>73 rich K7SZ

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Rich, I'm sorry you're having QRM, but I think the problem is closer to home. Us "data dinks" are very careful to avoid 7040, especially during RTTY contests. I run the legal limit, but NEVER closer than 2 KHz from 7040, above or below. Likewise, I have NEVER in four years of contesting, heard anyone else with RTTY right on 7040, and if I did I wouldn't work them even if I needed the multiplier. We usually hang up around 7070-7090, but some areas of the world like JA do not have that allocation, so we have to drop down into "your" area of the band to work them.

Are you using some kind of direct conversion receiver or one with a wide IF bandwidth? A lot of the QRPers do, and if so, nobody but them can fix that problem. Run a proper CW bandwidth (250 Hz) with a decent front end and I'll bet your problems go away. I've run direct conversion receivers and they're a lot of fun, but I sure would never complain about QRM!

This subject has been discussed on the RTTY reflector and everyone

there feels the same way. We "data dinks" have no desire to interfere with QRPers, but you folks have to do your part, too.

73, Bill W7TI

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Date: Wed, 10 Sep 1997 23:32:47 -0500 (CDT)  
From: gekko95@ix.netcom.com (Dave)  
Subject: Need a Heathkit ad....

Hello all,

Thanks again to all for the utter OUTPOURING of help and concern regarding that awful fire in my electronics storage unit. I've begun to itemize stuff, and doing fairly well. My adjuster is being more than fair, and he's actually very encouraging and tells me to make sure my values are sufficient. So a plug for his company, State Farm. Very nice folks in this situation.

But I need an ad showing a Heathkit Hero - the \$2000-ish version from the mid-80's. My agent says my homebrew robots should be worth that, and such an ad would be convincing proof. since Heathkit was really the only publicly marketed robot, that would indeed be a good reference for my 80486-based versions (VASTLY superior to the Hero, I might add :)

Does anyone have a Heathkit catalog showing a \$2k robot they could either scan or copy and send to me? I will gladly pay copy and mail costs. A scan would be more than suitable, if a scanner is available.

Also, I need such an ad for the Heathkit uMatic SA-5010 keyer which was also lost in the fire.

I am sure there will be more such ad's that I will need, but this would be a good start.

Thanks to all, and God bless.

Dave WB7AWK  
Tacoma, WA

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Date: Thu, 11 Sep 1997 08:59:04 -0500  
From: "Claton Cadmus" <aplitech@spacestar.net>  
Subject: Junk Box Challenge

I haven't forgotten this, I've simply been very busy. I became the owner of a TV-7/U tube tester and last night I spend some time testing tubes. No sense designing something for a bad tube. I've also found I have a lot more glowbuggy junk than I thought so the list of available parts should be fairly good. I still need to check out the transformers. Probably this weekend.

I have a couple of questions for the list.

Is this tube checker a decent one and can new or updated tube lists be had for

it? I currently have only a photocopy.

Also, I have an RCA 230 tube that I don't find in the tube list, this is a four pin tube. I think it might simply be a #30 in a different glass envelope. Could someone identify this for me?

Thanks.

- ----

73 de KA0GKC Claton Cadmus  
E-mail cla@spacestar.net  
If you live in Minnesota check out this webpage!  
<http://www.spacestar.net/users/aplitech/mnqrp>

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Date: Thu, 11 Sep 1997 11:06:13 -0400  
From: Roy Morgan <morgan@speckle.ncsl.nist.gov>  
Subject: Re: Junk Box Challenge

At 08:59 AM 9/11/97 -0500, Claton Cadmus wrote:

>TV-7/U tube tester ... can new or updated tube lists be had for  
>it?

AES sells very useable reproductions for about \$10:

Antique Electronic Supply  
6221 S.Maple Avenue  
Tempe,AZ 85283  
(602)820-5411  
(602)820-4643 Fax

>  
>Also, I have an RCA 230 ... four pin tube. ..it might simply be a #30

Yes, the 230 is the same as a 30. Manufacturers in the 20's and 30's tried to increase sales by specifying their own series of tubes ... don't hesitate to subsitute.

Keep em Glowing!  
Roy, K1LKY since 1959

- -- Roy Morgan/Building 820, Room 562/Gaithersburg MD 20899  
National Institute of Standards and Technology  
301-975-3254 Fax: 301-948-6213 morgan@speckle.ncsl.nist.gov --

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Date: Thu, 11 Sep 1997 09:33:59 -0700 (PDT)  
From: "Tom R. Rice" <tomrice@netcom.com>  
Subject: CW CRYSTALS: New e-mail address

The following message has been forwarded per John's request. Please zap your replies to him, not me, the mere forwarder.

73 de WB6bYH

> From: "Phoenix Crystals" <phxtal@nava-link.net>  
> Subject: CW CRYSTALS  
> Date: Thu, 11 Sep 97 09:25:41 PDT  
>  
> Hi Tom,  
> Well after being off e-mail for 10 days due to server being hit by  
> lightning, I've changed servers so I now have a new e-mail address. Since  
> I haven't been able to read the mail.....no telling what everyone is saying.  
> Anyway if anyone is asking you can pass the word around. Thanks  
>  
> New address is: cwxtal@u-n-i.net  
>  
> 73 John  
>  
> John Morris  
> C-W CRYSTALS (Formerly Phoenix Crystals)  
> 1714 NORTH ASH ST.  
> NEVADA, MO 64772  
>  
> Phone: (417) 667-6179  
> FAX: (417) 667-6169  
> E-mail: cwxtal@u-n-i.net  
>  
> Supplying custom crystals for Vintage Equipment, QRP'ers, Amateurs, and  
> Experimenters since 1933.  
>  
- -----  
  
- --  
"Start off every day with a smile and get it over with." --W.C.Fields  
Tom R. Rice  
tomrice@netcom.com

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Date: Thu, 11 Sep 1997 12:14:23 -0700 (MST)  
From: Jeff Duntemann <jeffd@coriolis.com>  
Subject: Quick toroid question

Hi gang--

Here's something I've often wondered about, and now that I have an application in mind I'd like to get some quick feedback from you heavy engineering types. (Don't forget that I'm just an English major with a soldering iron...)

As I understand it, toroid cores confine the RF flux pretty much to the core. This being the case, placing a steel bolt or other metallic object through the \*middle\* of the core shouldn't affect the core performance much. Right?

I have a T184-2 core that I'd like to use as the main pi net inductor in a 50-watt input transmitter. It would be convenient to mount the core behind a wafer switch for bandswitching, such that the rotary actuator bar (that flattened thing running down the middle of multigang rotary switches) runs through the middle of the core.



The T-184 is a BIG core (almost two inches) and the bar would go through dead center, well away from the core and the windings. Is this likely to affect Q significantly? My understanding says no--but I've been wrong before.

Any thoughts?

- --73--

- --Jeff Duntemann KG7JF  
Scottsdale, Arizona

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Date: Thu, 11 Sep 1997 14:23:32 -0700 (MST)  
From: Jeff Duntemann <jeffd@coriolis.com>  
Subject: Re: Quick toroid question

Bobbi--

Yikes! I never thought of a shorted turn through the middle!

Egad, that's something to think about. But it also implies that anything passing through the middle of the core will affect the flux, and that's kind of what I'm nervous about, because I don't want the iron to kill the Q of the inductor or make it impossible to determine. (Q is involved in designing the pi net, as you know better than I.)

A thick iron shank could be a haven for eddy currents, whether it's shorted or not, no?

Thanks much for your thoughts. This is the sort of thing I wouldn't have hit upon on my own.

- --73--

- --JD--

At 03:59 PM 9/11/97 -0500, you wrote:

>

>Hi, Jeff!

>

> H'mmm, the main caveat is to make sure there's not a back bearing that  
>will allow an electrical path that loops through the core; that'd be a  
>shorted turn, a real no-no. (Ya otta see what a mess that makes when done  
>to a toroidal power transformer: yow!) As long as only one end of the  
>actuator bar sees RF ground, you should be okay..

> I have mounted RF & power transformer toroids with brass bolts without  
>ill effect. Not sure what a dab of iron would do but the physics implies  
>not much. The odds favor giving it a try!

>

> 73,

> --Bobbi

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End of glowbugs V1 #109  
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Created by **Steve Modena, AB4EL**  
Comments and suggestions to **modena@SunSITE.unc.edu**

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